

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference PCT-153	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/EP 03/14978	International filing date (day/month/year) 29/12/2003	(Earliest) Priority Date (day/month/year)
Applicant TELEFONAKTIEBOLAGET LM ERICSSON (publ)		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 7 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☒ Unity of invention is lacking (see Box II).

4. With regard to the title,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

APPARATUSES AND METHOD FOR SINGLE SIGN-ON ACCESS TO A SERVICE NETWORK THROUGH AN ACCESS NETWORK

5. With regard to the abstract,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

1 ☐ None of the figures.

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Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

The present invention provides means and method for Single Sign-On authentication of a user (UE) accessing a service network (SN) through an access network (WLAN) when the user has been already authenticated by a core network (CN) where the user holds a subscription. Therefore, a number of means are provided in different entities distributed between the core network and the service network, as well as in the user's equipment (UE), for carrying out the proposed method. The Single Sign-On authentication takes place upon matching in the service network a shared key (SSO_key-1) for the user submitted from the core network with another shared key for the user derived at the user's equipment.

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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04L29/06 H04L12/28

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and where practical search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	3GPP: "TS 33.234: 3G Security; Wireless Local Area Network (WLAN) Interworking Security (Release 6)" 3GPP TECHNICAL STANDARD, 'Online! - November 2003 (2003-11) pages 1-50, XP002282973 Retrieved from the Internet: <URL:www.3gpp.org/specs> 'retrieved on 2004-06-02! paragraph '002.! - paragraph '6.1.4.!	1-4, 17-19
Y	---	5-16, 20-29
	-/--	



Further documents are listed in the continuation of box C



Patent family members are listed in annex.

* Special categories of cited documents

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *Z* document member of the same patent family

Date of the actual completion of the international search

7 June 2004

Date of mailing of the international search report

22/06/2004

Name and mailing address of the ISA

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Günther, S

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	MATSUNAGA Y ET AL: "SECURE AUTHENTICATION SYSTEM FOR PUBLIC WLAN ROAMING" WMASH 2003. PROCEEDINGS OF THE 1ST. ACM INTERNATIONAL WORKSHOP ON WIRELESS MOBILE APPLICATIONS AND SERVICES ON WLAN HOTSPOTS. SAN DIEGO, CA. SEPT. 19, 2003. PROCEEDINGS OF THE ACM INTERNATIONAL WORKSHOP ON WIRELESS MOBILE APPLICATIONS AND SERVICES ON. 19 September 2003 (2003-09-19), pages 113-121, XP001046692 ISBN: 1-58113-768-0 the whole document ---	5-16, 20-29
A	PASHALIDIS A ET AL: "Using gsm/umts for single sign-on" IEEE PROCEEDINGS. 26 October 2003 (2003-10-26), pages 138-145, XP010670965 cited in the application the whole document ---	1-29
A	WO 02/39237 A (IBM DEUTSCHLAND ;IBM (US)) 16 May 2002 (2002-05-16) page 7, line 25 -page 18, line 3: figures 1A-1C page 22, line 8 -page 28, line 32: figures 4A,4B ---	1-29
A	NIEMI A,ARKKO J,TORVINEN V: "RFC 3310 - Hypertext Transfer Protocol (HTTP) Digest Authentication Using Authentication and Key Agreement (AKA)" IETF REQUEST FOR COMMENT, - September 2002 (2002-09) pages 1-18, XP015009087 cited in the application paragraph '002.! - paragraph '004.! ---	1-29
A	WO 02/19593 A (ERICSSON TELEFON AB L M) 7 March 2002 (2002-03-07) page 8, line 1 -page 12, line 2 -----	1-29

FURTHER INFORMATION CONTINUED FROM PCT/SA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-3,17-20,21-29

Authentication of user access to an access gateway

2. Claims: 4-7,21-29

Management of master session records for authenticated users

3. Claims: 8-16,21-29

Management of user requests based on active service sessions

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Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☒ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

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Information on patent family members

International Application No

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Patent document cited in search report		Publication date	Patent family member(s)		Publication date
WO 0239237	A	16-05-2002	AU	1234502 A	21-05-2002
			WO	0239237 A2	16-05-2002
			EP	1368722 A2	10-12-2003
			TW	528957 B	21-04-2003

WO 0219593	A	07-03-2002	AU	8279501 A	13-03-2002
			EP	1314278 A2	28-05-2003
			WO	0219593 A2	07-03-2002
